

MTC TRANSIT CONNECTIVITY STUDY

DRAFT

TECHNICAL MEMORANDUM 4

Proposed Regional Wayfinding Signage Program



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4.1 INTRODUCTION

This technical memorandum describes the preliminary findings of hub survey, customer research, and recommended guidelines for a regional connectivity wayfinding signage program. Among the factors that affect the passenger's ability or propensity to use public transit are the information aids available, pre-trip and en route to provide guidance. Trips involving interagency or intra-agency transfers require passengers to gather information from several agencies pre-trip and follow wayfinding information provided by several agencies (or single agency) en route. Better coordination of this en route wayfinding information (signage) and emphasis upon connections wayfinding will help the passenger travel more confidently through various segments of the trip.

The establishment of wayfinding guidelines for regional transit connectivity is based upon the following:

- A field visit review of the existing signage and physical conditions at five representative prototypical hubs and the study team's perception of observed problems affecting connections.
- A review of the existing wayfinding signage standards and policies of the agencies operating the prototypical hubs, as well as larger network of regional transit hubs.
- Focus groups and questionnaires to obtain the regular users' viewpoints on making connections at the prototypical hubs.
- Travel diaries of non-users' viewpoints of using multiple transit agencies to reach destinations.
- A user-oriented analysis of the above research sources and activities.
- Empirical knowledge and experience with other multi-agency transit systems and what wayfinding components have been successfully used to aid connecting passengers.
- User-oriented analysis of the field visit and focus group findings to determine the meaning for wayfinding guidelines and recommending general and specific design concepts that will improve the ability of transit passengers to make interagency and intra-agency transfers at the prototypical hubs and larger network of regional transit hubs.

In both the field review of the hubs and focus groups, the quality of the wayfinding signage has been identified as a significant factor in the ease or difficulty in making connections. This confirms long-standing transit market research that effective information aids and wayfinding signage are essential (with other incentives) to enticing the public to use transit for trips, especially trips requiring interagency transfers. Travel within the San Francisco region requires the use of more than one transit service. Understanding how to do so, and making it more convenient, is the goal of this study and objective of establishing connectivity wayfinding signage guidelines.



4.2 PRINCIPLES FOR A REGIONAL WAYFINDING SIGNAGE PROGRAM

The Regional Signage Guidelines should be built upon a solid foundation of underlying principles or philosophy. The study team proposes that the existing BART system signage criteria, modified to respond to transit connectivity study needs, should serve as the basis of these principles. These principles are a thread running through the general and sign type guidelines described/illustrated in Appendix A.

Wayfinding is defined as the process which allows people to determine their location or destination, and develop and follow a plan that will help take them from their location to their desired destination.

4.2.1 Purposes of wayfinding and signage:

- To safely and efficiently guide and direct transit passengers who use or will use regional transit systems (trains, buses, ferries, shuttles, and paratransit). Wayfinding for passengers includes directional signage, schedule information, and information regarding transfers among and between different transit systems which operate at a transit center (hub).
- To safely and efficiently guide transit operator employees in their roles in the operations and maintenance of transit systems and to guide emergency personnel in their roles of protecting the public, passengers, and facilities.
- To comply with associated code and regulatory requirements, i.e., Americans with Disabilities Act, other Federal laws, building codes, and California Public Utility Commission requirements.
- To address advertisements to concession-related signage that helps earn revenue for transit operators and to help defray operating costs and minimize potential fare rates. In addition, advertisements provide transit and location information for transit passengers.

4.2.2 Wayfinding design standards and guidelines:

4.2.2.1 Regional Approach

Experience with signage used at airports and along Interstate highways teaches us that there is value in the consistent application of certain signage standards to enhance wayfinding for



travelers. Although each airline has its own identity, and the visual appearance of signage may vary among airports, travelers have come to recognize certain common components, i.e., terminology symbols, etc., commonly used throughout the air travel system.

San Francisco could benefit from a “regional” approach among the agencies with different identities whereby certain wayfinding components related to connections information could be a common thread linking their services together. This approach should be explored to provide a “regional connections wayfinding system” that is integrated with (or replaces) ineffective agency signage, yet allows for the diversity of agency corporate identity and architecture. A common connections symbol and color coding used on printed maps, schedules, and new on-street directional signs would be a logical place to start the unification of connectivity wayfinding information.

4.2.2.2 Architecture

Develop wayfinding as an integral part of the architecture and site design and not as an afterthought.

4.2.2.3 Site Design

Make transit centers recognizable within the urban fabric; make entries prominent and easily accessible; arrange routes so that destinations are visible whenever possible; and establish consistent placement of physical elements and services within the context of interesting and unique local design.

4.2.2.4 Decision Points

Spatial planning and design should include analysis of the series of trip segments that an individual must take when entering or leaving a transit center. Decision points are locations where an individual addresses the mid-level wayfinding decisions such as locating entrances and exits and major destination points within the site or facility. Understanding these segments (which comprise the circulation system) serves as a framework for identifying decision points and ultimately, for signing the site and facility.



4.2.2.5 Universal Design

Design facility and its wayfinding devices in accordance with principles of universal design which use simple language, pictograms, icons, and logos to maximize facilities' accessibility, usability, and friendliness for all transit passengers and employees. Code-mandated accessible route signs, tactile/Braille signs, identification of stations, platforms, elevators, permanent spaces, and transit information should be integrated to the greatest extent possible with overall wayfinding and identification signage.

4.2.2.6 Design Redundancy

Designs should include signs with both words and pictograms, audio/visual messages repeated on audio/visual message boards, tactile/visual maps in addition to signage, signs which have letters which are both high-contrast and tactile, and schedule and other transit information available on the internet, by phone, video formats and printed brochures and posters.

4.2.2.7 Understanding

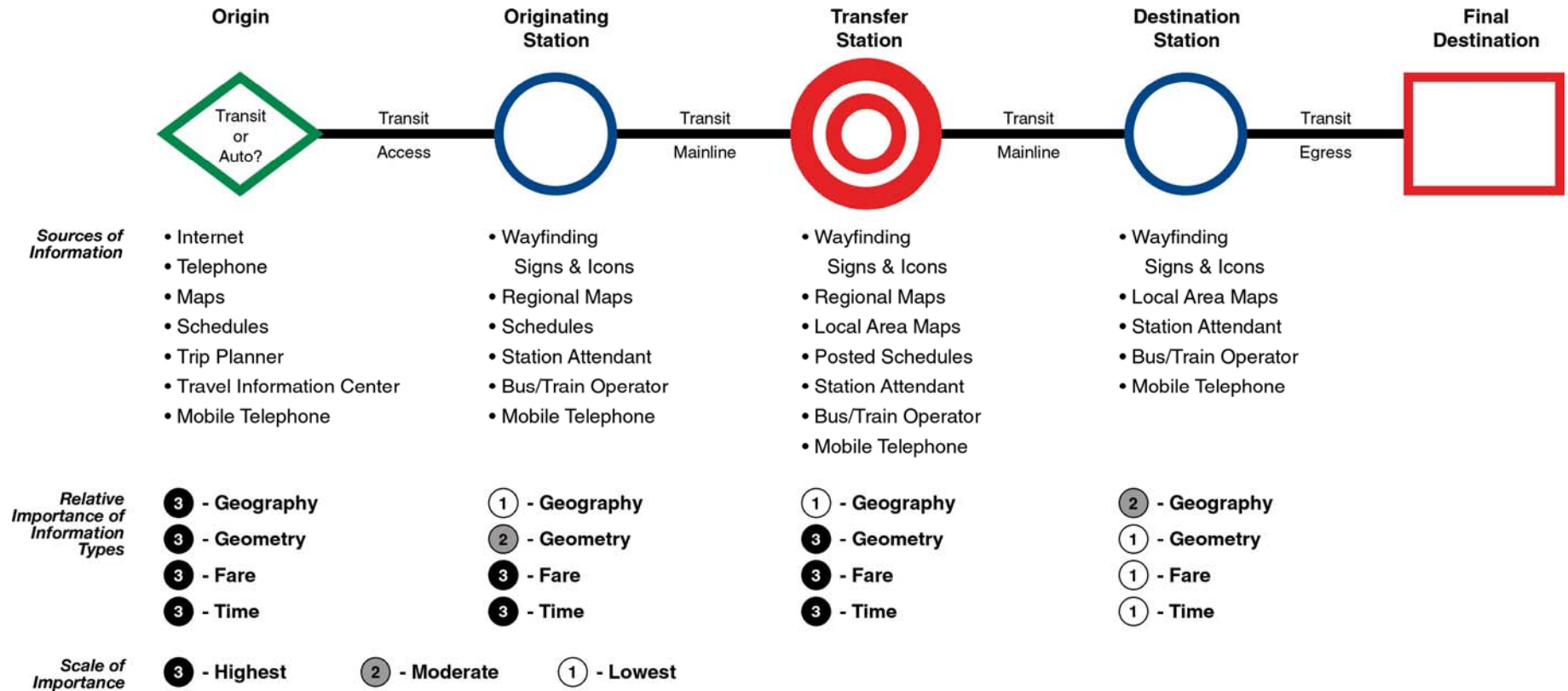
Wayfinding devices should be based upon principles of communication effectiveness:

- Consistency and uniformity refers to a passenger's expectations based upon past experiences (in this case other signs used within the transit system) called cognitive mapping.
- Rehearsal is based upon information given to a passenger prior to using a sign system such as printed maps pre-trip.
- Simplicity is such that a passenger is relatively familiar with the terms and symbols used throughout the sign system.
- Continuity in a sign program is a "building up" of the amount of information presented to the passenger during a trip segment and linking messages between signs.
- Repetition is the easiest form of sign education. Repetition of messages (agencies and connections) can be useful to reinforce destination information through the sequential use of repeating messages without information gaps on various sign types.

4.2.3 Connectivity Wayfinding Informational Needs

Transferring passengers and potential passengers need four types of information to determine if transit will connect their origin and destination for a trip. First, a general knowledge of the *geography* of the route(s) related to the origin and destination is needed. Second, a passenger should understand where the route operates in relation to the connecting routes or modes, and the location of stops, i.e., the *geometry*. Third, knowledge of the *time* of departure and arrival of each, as well as duration, is needed to schedule the trip on transit. Finally, transferring passengers need to know the *fare*, method of payment, and when and where to pay the fare for each.

During a trip requiring connections, passengers rely upon a variety of sources for wayfinding information. The diagram below illustrates the typical information needed by transferring passengers for each segment of a trip, potential sources of information and the relative importance of information types. How important each component is depends upon the type of transferring passenger and service/mode combination undertaken.



4.3 EXISTING WAYFINDING SIGNAGE CONDITIONS

In order for the recommended wayfinding connectivity signage guidelines to be credible, they must be applicable to “real world” connectivity challenges (informational needs) derived from physical conditions of each hub facility, service operation combinations, and level/quantity of existing signage. These vary greatly within the region, and in Task 2, the consultant team identified a total of 21 hubs having significant interagency or intra-agency transfer activity. Among these 21 hubs, five prototype hubs were selected to represent various location types, service combinations, levels of existing signage, and connectivity informational needs. The existing signage and conditions at these prototype hubs are representative of the signage and connectivity informational needs among the balance of the 21 regional network of hubs, as well as the existing signage standards currently used by the agencies.

Sign concepts and modifications recommended for specific and common problems at these hubs will be extendable to other hubs with similar signage and wayfinding informational needs. A detailed description of each prototype hub and wayfinding signage issues is contained in Technical Memorandum 3A.

San Rafael Transit Center is an urban bus-to-bus transit center having local regional, marin, airport, and intercity bus service. The types of connectivity informational needs at this hub (and others like it) include:

- The San Rafael Transit Center needs to be more clearly identified, visible from surrounding roadways by vehicular and pedestrian traffic.
- The platforms need to be more clearly identified.
- The bus boarding areas need to distinguish that there are different boarding points for the same routes, depending upon the direction of travel.
- Maps and schedule information need to be better organized and the connections information should be easier to understand.
- Transit schedules need to be kept up-to-date.

The signage at San Rafael is generic, mono-graphic style developed by the Transit Center architect, unique to this facility. The panel system is relatively easy to change and the locations of the existing signs are generally satisfactory, except the messaging should be modified on some signs to address connectivity needs identified above.

The agency responsible for signage modifications and maintenance at San Rafael is the owner, the City of San Rafael.



San Rafael Transit Center Entrance



San Rafael Maps and Schedules



San Rafael Platform Signage

El Cerrito Del Norte BART Station is an urban station with parking having regional rail and multiple agency local bus service with off-street boarding. The types of connectivity informational needs at this hub (and others like it) include:

- Clear directions to the correct bus and bus boarding locations need to be provided when exiting the station.
- Because of the multiple transit operators at this station, bolder, distinguishing identification of each agency is needed at bus boarding locations and boarding location maps within the station – perhaps use of logos.
- The bus boarding locations station layout display is too linear and needs color and contrast to define the station shape and have more visual impact and be easier to read. Operator logos are needed.
- Maps and schedule information need to be better organized and designed to make it easier to understand connection information.
- Station entrance and exit signs need to be lowered.

The signage at El Cerrito Del Norte BART Station uses multiple signage standards representative of each agency's current standards. Connectivity informational needs can be met by a combination of replacement and modification of existing signage. Signs are, in general, well positioned, except some directional signs may be added.

Dublin/Pleasanton BART Station is a suburban station with parking, having regional rail and multiple agency local bus service with off-street boarding. The types of connectivity informational needs at this hub (and others like it) include:

- Better directions to the connecting buses located on the north (Dublin side) and south (Pleasanton side) are needed quite some distance from the station.
- Directional signage to taxi, drop-off/pick-up and shuttle stops is needed.
- Better directions to the station entrance from the parking areas and bus stops are needed.
- Bus stop signs need to be bolder and utilize agency logos to distinguish among the agency stops.
- Connection information displays need to be better organized and lit.
- Real-time display outside the paid area needs to emphasize when the next train departs.

The signage at the Dublin/Pleasanton BART Station primarily uses the BART standards within the station and



El Cerrito del Norte Entrance Sign



El Cerrito del Norte Bus Stop Sign



Dublin/Pleasanton Station Bus Directional Signs

agency bus stop standards at the bus boarding areas. Connectivity informational needs can be met by a combination of replacement and modification of existing signage. Signs around the entrance are not well positioned – too small, high and poorly lit.

San Francisco Ferry Terminal/Embarcadero Station is an urban hub with ferry, regional and local rail, and multiple agency bus service with on-street boarding. In addition to regular users, this hub serves tourists and visitors to downtown San Francisco. Because of the size and variation of this hub, there are many types of connectivity informational needs, including:

- Entrances to and from the ferries and terminal building need to be more clearly marked.
- Directional signage from the terminal building to MUNI, BART, AMTRAK, cable car, Market Street, Transbay Terminal and taxis is needed.
- Maps and destination guide displays are needed within the ferry building, providing comprehensive information about connection and destination possibilities.
- Existing wayfinding signage to ferry gates needs greater visual impact.
- Ferry gate identification is generic and needs to be more destination specific.
- On-street pedestrian directional signage between the ferry building and Embarcadero Station is needed.
- Clearer directions to nearby MUNI bus stops are needed.
- The entrance to the Embarcadero Station on the west side of Market Street needs to be identified.
- Exit directional signage within Embarcadero Station needs to identify the connection services available via each exit.
- Existing regional transit displays within the Embarcadero Station are merely a collection of existing agency route maps. These displays need to be reorganized and designed to emphasize transit connections/nearby bus stops so as to be simpler to use and easier to understand.
- Stronger differentiation between the MUNI and BART entrances within the Embarcadero Station is needed – perhaps use of logos.
- Clear identification signage is needed on platforms to indicate where to board BART and MUNI trains.

The signage at the Ferry Terminal/Embarcadero Station consists of a variety of uncoordinated styles and standards. Existing signage within or between these facilities may be characterized as minimal, lost within the urban streetscape, or non-existent. A study has been commissioned to recommend a wayfinding signage program for the Ferry Terminal complex. The preliminary study recommends inclusion of connecting transportation/destination information on signs. Connectivity informational needs can be met primarily by additional on-street pedestrian signage in combination with replacement of existing directional signage at the facilities and modification of existing regional transit displays at Embarcadero Station. It would also require an



Dublin/Pleasanton Station Map



Ferry Terminal Informational Sign



MUNI F Line Stop @ Ferry Terminal

unprecedented level of cooperation among the agencies responsible for the signage within and among these facilities – Golden Gate Transit, the City of San Francisco, MUNI, and BART.

San Jose Diridon Station is an urban station with commuter rail, intercity rail, LRT, and multiple-agency local bus service with off-street boarding. The types of connectivity informational needs at this hub (and others like it) include:

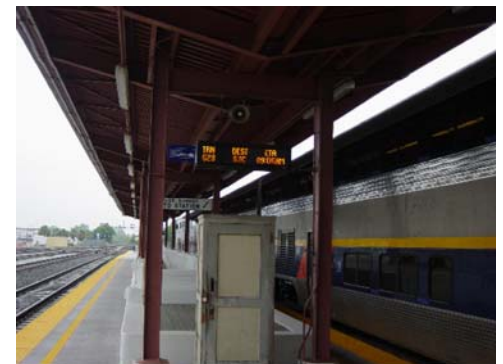
- Clearer directions from the waiting area to the platforms.
- A positive indication of the passageways leading to the platforms, as well as real-time identification of the train and departure time.
- Clearer identification of the station name.
- Clearer directions to the connecting bus stops.
- Larger, bolder signage identifying the free downtown shuttle.
- The regional transit information displays, including maps, need to be better organized and designed to be easier to understand.



Embarcadero Station - Connector Displays



Diridon Station Amtrak Bus Stop



Diridon Station Platform Signage

4.4 WAYFINDING SIGNAGE CUSTOMER RESEARCH FINDINGS

To supplement the study team's perceptions of connectivity needs and deficiencies at the prototype hubs, the experience of the regular user and non-transit user was investigated by MIG, Inc. The regular users of each prototype hub participated in focus group sessions. Non-users were requested to record their experience of making a transit trip requiring a connection in travel diaries. A complete description of the findings is contained in Task 5.

Customer research findings provided by the focus groups and travel diaries are valuable for the following reasons:

- To gain insight into the problems and deficiencies encountered by new and unfamiliar transit passengers.
- To learn what could be improved to make the transit connection experience easier.
- To devise recommendations for improvements to signage and graphics, resulting from the observations and suggestions of the focus groups.
- To discern ways to promote smooth transit connections among the various transit services available.

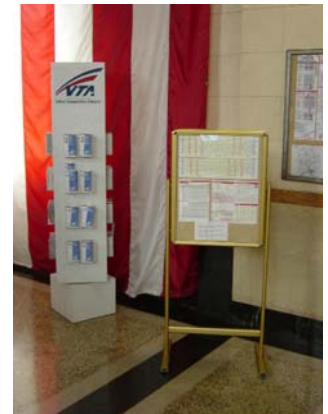
4.4.1 Regular Transit User Connectivity Information Needs

Based on comments of focus group participants, the following summary of connectivity information needs have been identified for regular transit users:

- Provide up-to-date, comprehensive information displays, including service route maps and schedules, to replace displays with incomplete or outdated information. Provide new or rehabilitated display cases to replace old, dirty, and dilapidated cases. Make the maps and schedules larger and easier to read.
- Locate map/schedule displays more strategically, where they will be easily noticed by passengers. Graphics should be bold enough to attract attention to the display.
- Install a greater number of schedule displays, above and below ground (if applicable). Riders would benefit from knowing when the transit is due to arrive, prior to entering the station or paid area. This would enable a passenger to run an errand, if time allowed, rather than waiting for a long period in the station.
- Provide more local area maps, containing more useful information, such as nearby places of interest and local services.



San Rafael Information Display



Diridon Schedule Display



CALTRAIN Station Display

- Make schedules easier to read, using shading or grids to enable the viewer to read across rows. Display schedule information and route maps at every transit stop. Printed schedules should also be available.
- Select optimum locations for signs, considering sight lines and circulation paths. Organize signs logically. Repeat messages on signs more frequently in larger stations.
- Use bolder, more colorful signage to increase visibility; dark and drab signs do not attract attention and are more difficult to read. Possibly add standard international symbols to reinforce messages.
- Add signs to designate which track to use, direction of travel for each platform, and where to wait. Many survey respondents noted the current absence of such signs, and the resultant confusion.
- Include multilingual messages on schedules and key signs, to reach a greater number of passengers.

4.4.2 Non-transit User Connectivity Information Needs

For non-transit users have additional information needs, since they are unfamiliar with riding transit and the connection process.

- Make printed schedules and maps easily available.
- Provide information about transfers - how they work, and how/where to buy them.
- Use clearer signage to indicate where to wait - what side of station, which platform (to avoid missed connections).
- Use consistent, repetitive signage for reinforcement. This may avoid the necessity of asking transit personnel or other passengers for information.
- Provide clearer exit signs from stations, denoting possible transit connections accessible from each exit.

4.4.3 Real-time Information

Participants in all five regular transit user focus groups requested real-time displays with complete operator information for each station. They also suggested that, in addition to the actual boarding point, displays would be most effective if placed outside of the paid area.

For non-transit users involved in this study, who were not on a specific work-related timetable or for non-users, who have more time at their disposal for making a trip, real-time displays were less important because they were more concerned with making sure they found their connecting service and where to wait than with the actual time of arrival.

Both groups felt that real-time displays were less important when frequent service is scheduled.



Diridon Station Platform Signage



MUNI Metro Real Time Display



Embarcadero MUNI Metro Info Kiosk

4.4.4 Wayfinding Signage Focus Group Sessions – Improvement Concepts Tested

Based upon the study team analysis of connectivity informational needs and comments obtained from the public during the initial focus group sessions, recommended concepts for improving the connectivity wayfinding signage were developed. These concepts focused upon the most relevant types of signs customers refer to (for connectivity) at their transit station:

- Signs identifying the station and transit operators.
- Directional signage for moving around or entering and exiting the station.
- Signs that identify where to board or wait for transit.
- Signs providing orientation to your surroundings beyond the station.
- Real-time transit signs.

Signage concepts for improving signage or opportunities to promote connectivity were tested by focus groups using PhotoShop simulations of the before and after appearance of the signage at the prototype hub stations. In general, reaction to the concepts was positive and constructive suggestions were made to further improve the concepts. These concepts are illustrated in Appendix A as graphic examples of the wayfinding signage guidelines description. A complete description of the reaction to these concepts (which illustrate the proposed guidelines) is contained in Task 5.

4.4.5 Focus Group Sessions – Impact upon Signage

A complete and detailed description of the comments and findings of all focus groups is contained in a separate report and submittal. In general, there was expressed a desire for the following wayfinding signage improvements.

- Transit users and non-transit users expressed a desire for more frequent directional signs to help them locate the agency, stop location, and to navigate through and beyond the facilities to their connections. The guidelines response is to recommend methods of providing better directions (at stations and on urban streets) to connection stops. Also, the next sign should always be visible beyond the current sign they are reading.
- Many transit users were unaware of the presence of existing wayfinding signage, as it “blended into” the environment. Another comment was that connections information looked the same as all other directional information in a monotone signage system. The guideline response is to make connections wayfinding signage more conspicuous and distinctive, utilizing a yellow background to symbolize connections information.



Embarcadero Exit Signage



San Rafael Platform Signage

- Transit users and non-transit users expressed a desire for “area maps” that provide information about where I am relative to my surroundings and what is outside the station. The existing map displays at the hubs are either too complex to read or too difficult to understand where connecting services are located. The guidelines response is to propose simplified area maps, with localized area and transit connection services, with a focus upon making connections. These maps and their information are unique to each station.
- Transit users expressed a desire for more “real time” signage so that they could estimate the urgency of getting to the station platform or their stop. The guidelines response is to recommend more real-time signs, particularly outside of the paid area, and whenever feasible, use a countdown display.
- Non-transit users expressed a desire for more obvious and clear identification of stops and station entrances, as critical to their wayfinding. The guidelines response is to recommend methods.

4.5 RECOMMENDED WAYFINDING SIGNAGE IMPLEMENTATION PRIORITIES

Based upon review and analysis of the prototype hub and customer research findings, the following is a prioritized list of the wayfinding signage improvements, which would enhance connectivity among existing and potential customers. These improvements address certain common wayfinding/signage deficiencies and problems regardless of the type of interagency or intra-agency service connections or hub physical conditions.

4.5.1 Better, Easy to Understand Transit Connector Displays at Hubs are Needed

Most displays contain a collection of existing printed maps, schedules, and information about individual services, which the customer has to figure out. Generally the displays are maps that show a macro view, whereas the customer's wayfinding needs are more for localized destinations. Consideration should be given to the design development of prototypical components for the presentation of information, guidance that responds to the customer's wayfinding needs, and what opportunities are available at each hub.

WHAT service do I use for the connection to reach my destination?

WHERE do I find the stop?

HOW do I pay for the connecting service, when, and how much will it cost?

WHEN does the connecting service arrive?

These questions are basic information needs of all transit users and critical for trips requiring connections. You have to decide where you are going and how you will get there and where the connection points are (maps) – that is the first step in wayfinding. Better localized area maps were one of the information aids requested by focus groups to improve their connections wayfinding.

The form of this information may vary among the hubs as their transit connection wayfinding needs vary. The information may be in the form of a destination locator matrix or a simplified local area map having nearby bus stops/routes shown with alphabetized listing of points of interest and trip generators (Figure 4.5-1). In the Ferry Terminal/Embarcadero hub, a special Visitor's Transit Map may be appropriate for indicating not only an alphabetized listing of trip generators, including hotels, but also the MUNI routes serving those destinations. These information aids must be easy to update and economical to produce.



Figure 4.5-1
Proposed Embarcadero Station Bus Boarding Locations

4.5.2 Better Directions to Bus Boarding Areas upon Exiting the Hub Station Are Needed

In the suburban BART stations, better guidance to the respective connection bus stops would be helpful (Figure 4.5-2). While some stations, e.g., BART Del Norte, have diagrams (with magnetic strips identifying bus stops), they are weak and the customers may find it difficult to orient themselves to the outside configuration of the bus bay/stops. Easy-to-change directional signs are required, added to existing sign locations.

The problem of finding the connecting bus stop is much more complex in an urban setting, where the bus stop location is not always obvious and blends into the streetscape. Here the customer is primarily dependent upon wayfinding signage.

4.5.3 Better Printed Mapping is Needed that Emphasizes Connection Possibilities

There are many existing maps now displayed at hubs and in printed form for pre-trip information. Depending upon their destination, and combination of services required to reach their destination, a customer may need to reference two or three map sources. A new MTC system map/visitor's guide, along with 511 and web site that disseminate comprehensive regional transit information for all agencies and modes, would be more useful among. If there were more systematic coordination of connection information among the transit services, it would establish a cohesive network of connection information.

4.5.4 Better Identification of the Hub Facility is Needed

Better hub facility identification should improve connection wayfinding by making the entrance to the service (via pedestrian or vehicle) more conspicuous and promoting awareness of the presence of transit within the community or urban setting. The use of the service logos, BART, MUNI, Golden Gate, ACTransit, etc., would reinforce the branding and identity of each service (Figure 4.5-3). Entrance signs could incorporate the localized bus service under the heading of the primary regional transit service at each hub – to promote awareness of multiple transit services available at some hubs.

4.5.5 Better Identification of Bus Stops is Needed

The use of service logos and colors would help distinguish various bus services at hubs and in downtown San Francisco. In this way, the bus stop signs will reinforce the vehicle identification and service identity colors making them easier to find. This principle of wayfinding has been successfully utilized in the corporate and commercial field for years, e.g., rental car companies often use their logos on airport wayfinding signage.



Figure 4.5-2
Proposed Embarcadero Station exit directions -
use of logos to reinforce directions to services



Figure 4.5-3
Proposed Embarcadero Station entrance identification

4.5.6 Better Wayfinding Signage within Hubs is Needed

One way to make the transferring experience less confusing is to simply provide better wayfinding signage within the hub to the service choices available. This need is particularly important in the Embarcadero station to provide better guidance to and between the BART and MUNI entrances and exits from the station. The use of service logos would be helpful instead of the generic messages on the signs.

At the San Rafael Transit Center, better directional signage between the platforms is needed to guide transferring passengers to the correct platform and route (Figure 4.5-4).

4.5.7 Better “Real-time” Information Displays are Needed

The use of “real time” displays is a trend that is continuing because customers appreciate the information these displays provide, as well as reducing the anxiety of the unknown. Real-time displays should be located directly outside the paid station area, to enable decision-making prior to entering. Real-time displays within the station could tell passengers which platform their train is boarding on (Figure 4.5-5).

Also, uniform presentation and frequency of how the information is displayed would be more helpful. Amber color is the most legible, and customers would prefer a continuous update of information as opposed to intermittent updates, like those provided on BART signs.

4.5.8 Better Interagency Cooperation of Signage Maintenance

Many of the displays at stations utilize maps and other information provided by connecting services agencies as a convenience for customers using these facilities. For example, many BART stations have information about local and regional feeder bus services, and on-site bus stop signs are provided by the bus service. It is acknowledged that there are institutional/ongoing maintenance issues that will have an impact upon implementing recommendations.

The matrix depicted on the following page summarizes the most significant and level of importance of connectivity informational needs among the five prototype hubs. That is, with a limited budget available for a regional wayfinding program and each hub, what improvement would most benefit the customers’ needs.



Figure 4.5-4
San Rafael Bus Transfer Center proposed bus boarding identification
Northbound & Southbound Routes 26 & 27 board on different platforms



Figure 4.5-5
Proposed Rail Station directions to platform

| Transit Hub | County | Transit Modes | Operators | Type | CONNECTIVITY INFORMATION NEEDED | | | | |
|---|---------------|---|---|----------|---|---|--|--|---------------------------------------|
| | | | | | Signs Identifying the Station and Transit Operators | Directional Signage for Moving Around or Entering and Exiting the Station | Signs that Identify where to Board or Wait for Transit | Signs Providing Orientation to Surroundings beyond the Station | Signs Providing Real-time Information |
| Dublin Pleasanton BART | Alameda | BART, Transit Bus | BART, WHEELS, Amtrak buses, County Connection, Modesto Area Express/Max, San Joaquin Regional Transit/SMART | Suburban | 2 | 2 | 2 | 3 | ● |
| El Cerrito Del Norte BART | Contra Costa | BART, Transit Bus | BART, AC Transit, Westcat, GGT, Vallejo | Urban | ● | 2 | 2 | 3 | 3 |
| San Rafael Transit Center | Marin | Transit Bus, Intercity Bus, Marin Airporter | GGT, Greyhound, Marin, Sonoma Airporters | Urban | 3 | ● | 3 | 3 | 3 |
| San Francisco Ferry Terminal & Embarcadero Station | San Francisco | BART, Ferry, Intercity Bus, LRT, Streetcar, Transit Bus | BART, GGT Bus & Ferry, MUNI Bus, LRT & Streetcar, Vallejo, Alameda & Harbor Bay Ferries, Tiburon Ferry, Amtrak, AC Transit Transbay Bus | Downtown | 3 | 3 | 2 | 3 | 3 |
| San Jose Diridon Station | Santa Clara | Commuter Rail, Amtrak, LRT, Bus | Caltrain, Capitol Corridor, Amtrak, Altamont Commuter Express (ACE), Valley Transportation Authority (VTA), Santa Clara Transit | Downtown | ● | 3 | 3 | 3 | 3 |

3 HIGHEST NEED
2 MODERATE NEED
● LOWEST NEED

4.6 ESTIMATED COSTS FOR DESIGN, INSTALLATION, AND ONGOING MAINTENANCE

(To be completed following TAC review of regional wayfinding program and guidelines.)

4.7 ADMINISTRATIVE/MAINTENANCE RESPONSIBILITIES

(To be completed following TAC and agency review of regional wayfinding program and guidelines.)

MTC TRANSIT CONNECTIVITY STUDY

TECHNICAL MEMORANDUM 4
Proposed Regional Wayfinding Signage Program

APPENDIX A

REGIONAL WAYFINDING SIGNAGE GUIDELINES

APPENDIX A - REGIONAL WAYFINDING SIGNAGE GUIDELINES

The findings from the review of the five prototype hubs, existing agencies' signage standards and focus group general comments and reaction to concepts for improving connectivity wayfinding, and the consultant's empirical knowledge serve as the basis for the development of the Regional Wayfinding Signage Guidelines. The guidelines are categorized by five types of wayfinding informational needs and visually expressed by the associated visual simulations of proposed design concepts at the prototype hubs. Graphic design, basic architectural, and placement guidelines are incorporated into the guidelines.

The wayfinding signage guidelines are organized into three interrelated parts to be a flexible and working document. Like the wayfinding process, these parts flow from the general to the specific.

1. **Principles for a regional wayfinding signage program** serve as the underlying wayfinding principles and philosophy for the program.
2. **General sign guidelines** define those common sign planning and design elements that apply throughout the program, e.g., location, terminology, symbols, color and function, coordination with existing signage, lighting, contract, ADA, etc.
3. **Proposed sign types** address specific functional information needs that customers have, e.g., where to board or wait for transit, etc., and serve as the application guidelines for the wayfinding program.

General Sign Guidelines

Application of these common planning and design guidelines will, despite different appearances of signs, contribute to a consistent and uniform wayfinding strategy.

Scope

These wayfinding signage guidelines apply to the connectivity wayfinding signage at the 21 (and beyond) regional transit hubs where a high frequency of transfers occurs.

- Existing signs affected at facilities
- New signs proposed at facilities
- New signs proposed between facilities



These guidelines also apply to the agencies that are responsible for the existing signage at these 21 regional transit hubs.

These guidelines, with further planning and design development, serve as a tool to implement a regional wayfinding program. Note that there is a difference between “standards” (i.e., mandated or required) versus “guidelines” (i.e., recommended or “best practice”) used in this project.

The guidelines will not:

- Address unique signage problems, e.g., retrofitting existing signs
- Show where signs should be located on a plan
- Describe the solutions to complex problems, e.g., Ferry Terminal complex
- Address specific planning and wayfinding issues except for the visual simulations of certain conditions at the hubs
- Address specific signage projects or implementation issues

Connectivity Information Placement

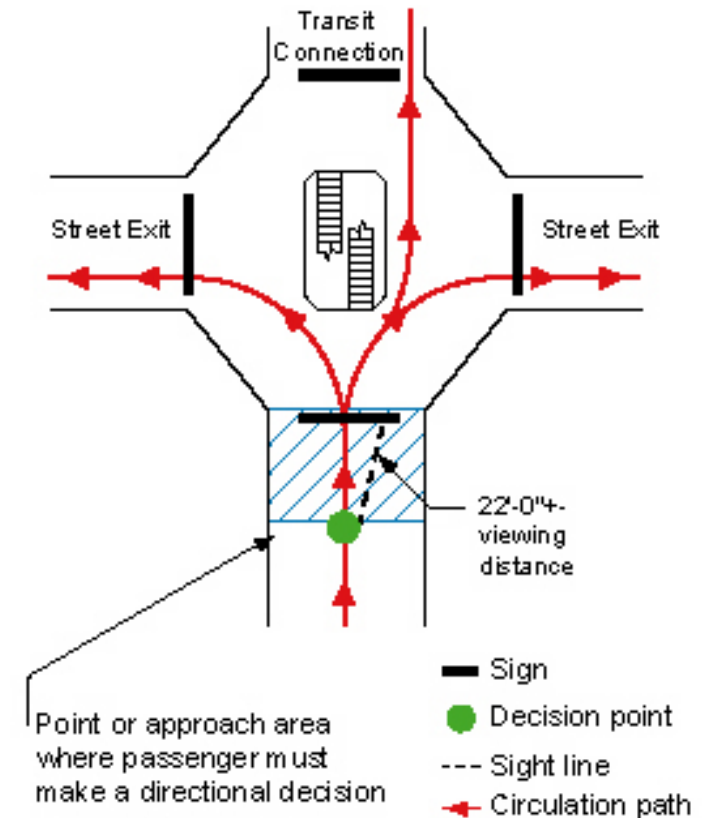
Connectivity information shall be provided in advance of decision points to enable the user to understand what is necessary to navigate each segment of the trip, i.e., when entering, exiting, or between facilities.

Connectivity Information Content

The presentation (content and format) of the connectivity information should be appropriate for the immediate wayfinding decision (e.g., first lead one to exit the station, then provide information about connection possibilities:

- What service do I use for the connection I need to reach my destination?
- Where do I find the nearest appropriate stop?
- How do I pay for the connecting service, when, and how much will it cost?
- When does the connecting service arrive?),

and provide guidance that responds to the customers’ connectivity wayfinding needs and opportunities specific to each hub.



Connectivity Information Integration

Rather than introduce a new layer of signage, connectivity information shall be integrated as much as possible with existing wayfinding signage. Revise existing sign panels, or add new signs coordinated in appearance with existing signs or displays. New sign locations shall be added whenever there is an obvious gap in the information flow.

Sign Architectural Interface

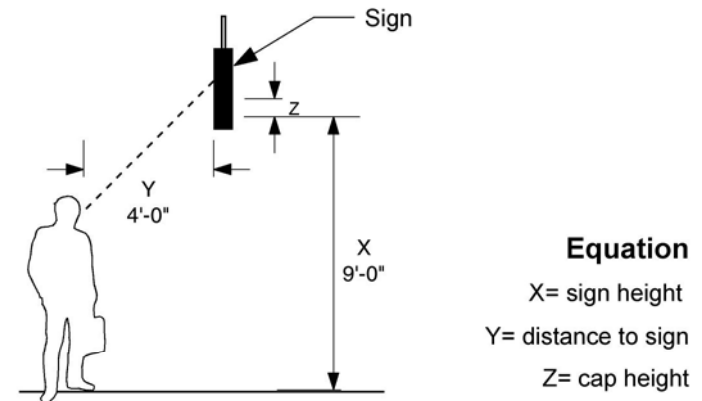
Where new signs are added, they shall be mounted to existing structures or attached to surfaces per standards applicable for each facility in the most economical manner in keeping with sound engineering practice. All existing sign modifications or additions shall be subject to the approval of the agency with jurisdiction over the facility or location.

Sign Visibility

Signs shall be positioned for maximum visibility along the customer's sightline and according to functional information being presented. If possible, directional and identification signs with simple messages should be overhead. Maps and transit informational signs with detailed graphics and text should be at eye level. Whenever possible, overhead signs should maintain 9'-0" clearance beneath to protect from vandalism.

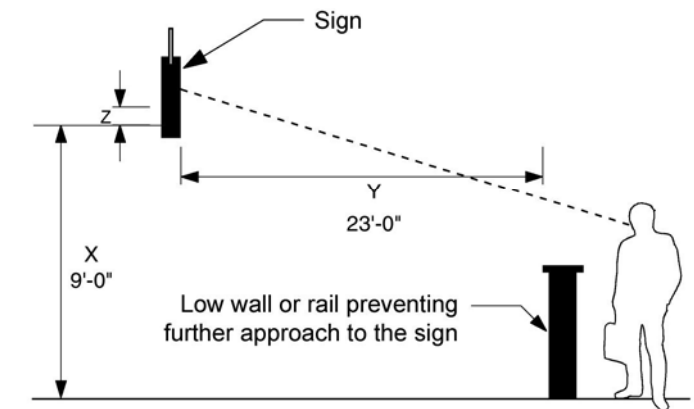
Sign Frequency

Signs should be located at or slightly in advance of the decision point, allowing the user time to assimilate, process, and make a decision as to which way to go before the decision point. Except where the direction to walk is obvious, or no choice exists, the next directional sign beyond should be visible.



Example #1 of sign location cap height

X= 9'-0" (108") Y= 4'-0" (48") Z= (2" cap height)



Example #2 of sign location cap height

X= 9'-0" (99") Y= 15'-0" (48") Z = (3" cap height)

Connecting Services at Exits

At each facility exit, the connecting services accessible via that exit should be identified, along with the destinations they serve (Figure A-4.1).

Coordination with Pre-trip Information

The presentation of connectivity information on “en route” signage should be coordinated with pre-trip information obtained through the 511 service, Internet, telephone, and printed information aids, i.e., maps, schedules, guides, etc. The same identification terminology shall be used on signs as well as other pre-trip information sources.

Maintenance

The presentation of connectivity information added to signs shall be easily changed; use of computer-generated graphics, overlays, and appliques, is recommended. Modular graphic layout, whereby only a section of the sign is replaced, is also recommended.

Terminology

The heading of the existing regional transit information displays should be changed to “connecting transit information” which more clearly connotes the purpose of the displays.

Exit Information

When exiting the paid area from the rail stations, more descriptive connecting services should be associated with the term “exit”, e.g., exit to connecting buses or taxis or shuttle buses, which promotes the other modes of connecting transit (Figure A-4.2).

Typography

The typography used for connectivity messages shall match the typography used within the current signage at each facility. If more than one typography style is on existing signs, use the most legible font.



Figure A-4.1 Proposed Embarcadero Station exit directions - use of logos to reinforce directions to services



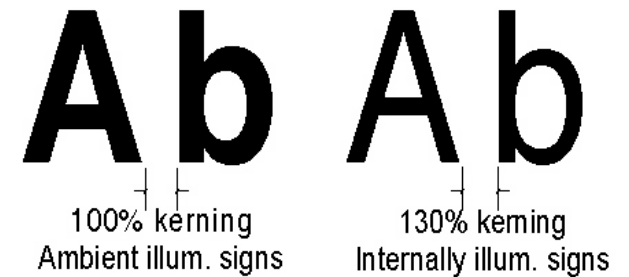
Figure A-4.2 - Proposed Exit Information

Letter/Line/Word Spacing

The letter/line/word spacing of connectivity messages shall match existing messages as much as possible. Ambient-illuminated signs use 100 percent (normal) and internally-illuminated signs use 130 percent (wide) to maximize legibility.

Case

Connectivity message case should match existing sign messages as much as possible – upper case or upper and lower case.



Language

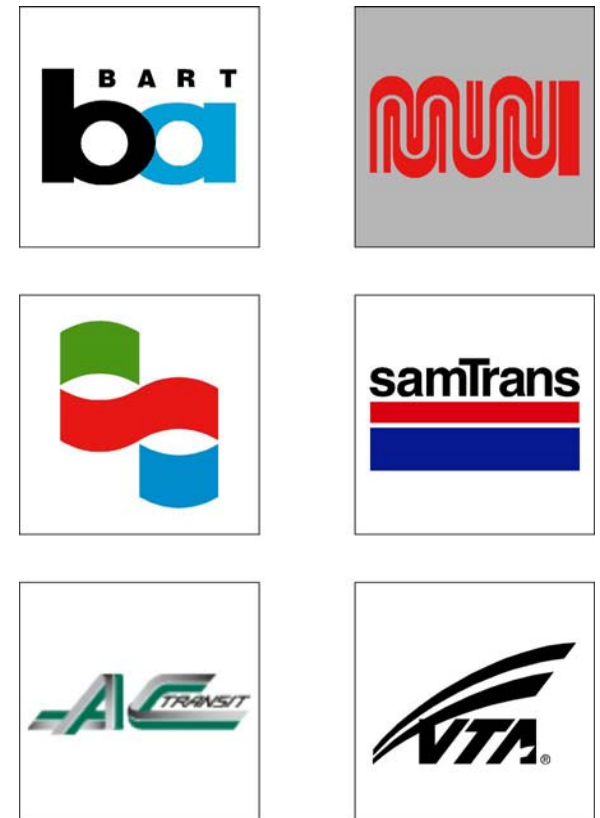
Connectivity directional and identification messages shall be primarily in English, supplemented with graphic symbols to promote universal understanding, because most are proper names, e.g., street name, or agency, and do not translate.

Language – General Information

General information describing how to use the service could be multilingual, based upon the predominant languages used in the San Francisco area. Or, the information could be displayed in English and Spanish only, since there are numerous languages and limited space available.

Agency Logos

Agency logos should be used extensively on directional signage and maps to reinforce and distinguish the identity of each agency for stops and service information. Where an agency operates more than one mode of service, e.g., Golden Gate operates ferries and buses or MUNI which operates Muni Metro, on-street buses and streetcars, and cable cars, the generic DOT pictograms should be used when space allows to distinguish these modes under the heading of the agency logo.



Arrows

Except for the BART arrow, arrow styles shall match existing signs at the facility and shall be in proportion to the message size. Arrows should “pull”, not push, a sign message for better comprehension (TCRP Report 12, p. 29, and MUTCD p.2D-15). A bolder, more visible arrow stroke is recommended for BART (Figures A-6.1 and A-6.2).

Color Coding

Station exiting information about connectivity should have a consistent color background to facilitate rapid recognition and distinction. Yellow with black text is recommended as being highly conspicuous and symbolize connections information.

Illumination

Whenever possible, new or modified signs should be located so as to be legible under all lighting conditions. Either a minimum of 30 foot candles of light on the sign face or internal illumination of messages is recommended.

Contrast and Finish

Messages shall contrast with background to maximize legibility. A minimum ratio of 70 percent, per 1991 ADA guidelines, is recommended (Figure A-6.3). Signs shall have a low glare finish.

Message Size

Viewing distance should determine the minimum character height (Figure A-6.4). In general, for persons with normal visual acuity, 1” of cap height equals approximately 30’ of readability, given adequate contrast and illumination.

Americans with Disabilities Act

As much as practicable, new signs added shall comply with the 2004 ADA Guidelines for Signage (Section 703) and Transportation (Section 810). Appendices B and C contain excerpts from these guidelines.

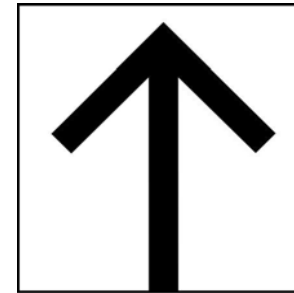


Figure A-6.1
Existing BART Arrow

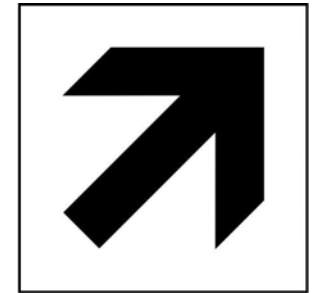


Figure A-6.2
Recommended BART Arrow

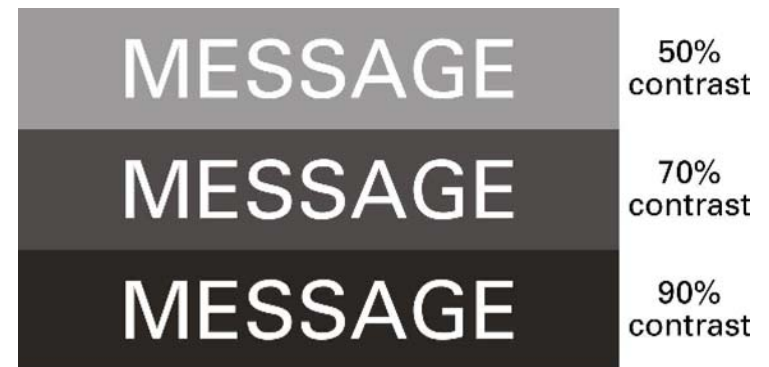


Figure A-6.3
Contrast Ratios

| Distance (Ft.) | 7.5 | 15 | 22.5 | 30 | 37.5 | 45 | 60 | 75 | 90 | 105 | 120 | 150 | 180 |
|----------------------|-----|----|------|----|------|-----|----|-----|----|-----|-----|-----|-----|
| Cap Letter Ht. (In.) | .25 | .5 | .75 | 1 | 1.25 | 1.5 | 2 | 2.5 | 3 | 3.5 | 4 | 5 | 6 |

Figure A-6.4
Message Size

Elevator Identification

Elevators and other accessible routes should identify the connecting transit services that could be ultimately reached.

Form of Wayfinding Signs

The form of the wayfinding signs, incorporating these general guidelines, may be customized (or vary in appearance) depending upon the site-specific circumstances.

Proposed Sign Types

Each facility has certain wayfinding issues associated with its use and making a connection, which can be addressed through certain types of signs. The following sign types cover these issues.

Signs Identifying Station and Transit Operator

Facility Identification

The name of the facility or function of the facility should be visible from all approaches (Figure A-7.1).

Facility Name

All station identification signs should include the station name to reinforce the information on maps, schedules, and other printed aids, and to enable patrons to relate to verbal directions (Figure A-7.2).



Figure A-7.1
Proposed San Rafael Transit Center identification



Figure A-7.2
Proposed Embarcadero Station entrance identification

Directional Signage for Moving around or Entering and Exiting the Station

Agency Name Reinforcement/Logos Directions to Services

At BART/MUNI downtown stations, turnstile level street exit directional signs should also include connecting agency names and logos.

Arrow Relation to Message

For clarity, arrows should be closely associated with their respective messages.

Sign Sightlines

Directional signs should be mounted no higher than 9' to the bottom of signs so as to remain within the patron's cone of vision sightline.

Urban Directions

Where the connecting transit service is not immediately outside the station exit, provide guidance as to on-street walking direction and distance. The disc on the top of the pole would incorporate a regional transit connections logo.(Figure A-8.1).

Functional Information

As much as possible, connectivity information should be grouped on signs by function, e.g., directional, identification, etc.

Simplicity

Connectivity information should be simple and concise, with easily understood terms.

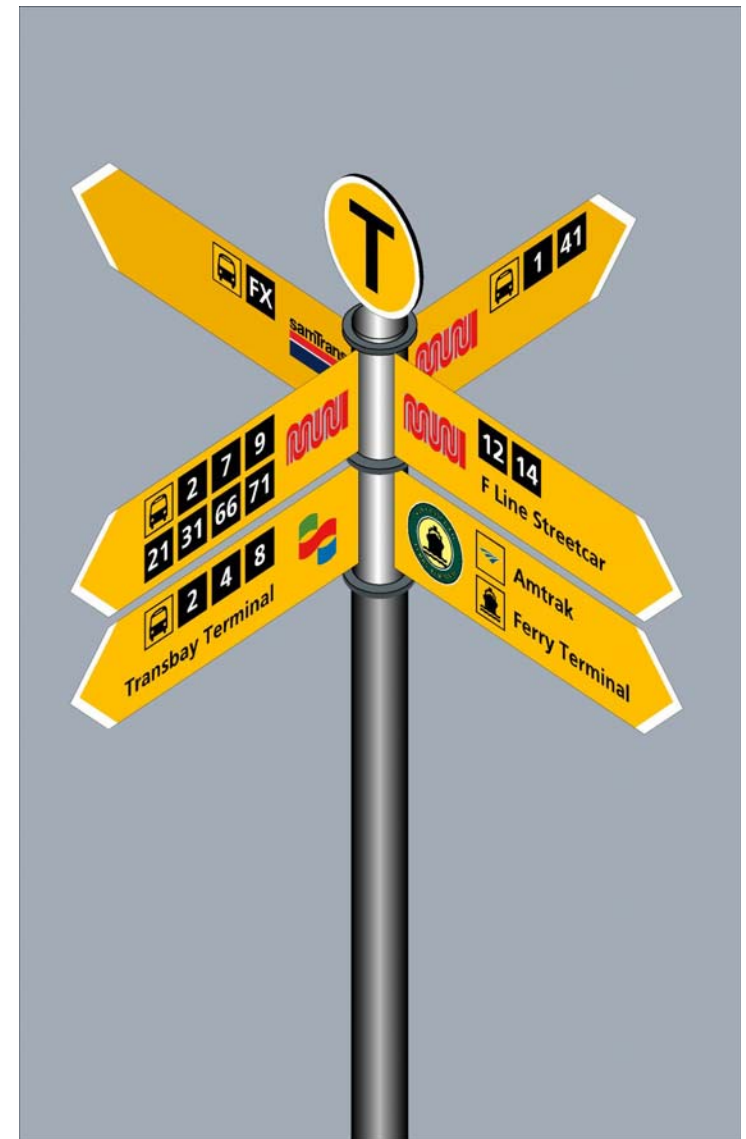


Figure A-8.1
Proposed Urban Multi-Directional
"Connector Locator"

Grouping of Information

Vital connection information should be grouped together, e.g., specific routes should be incorporated into the overhead entry signage at the turnstiles at the MUNI Metro: J, K, L, M, and N at Embarcadero Station.

Architectural Interface

As much as possible, new directional signs should be mounted on existing architectural structures, e.g., canopies, beams, columns, or sign posts.

Confirmation of Connection

In commuter rail stations with multiple track and agency train service, provide confirmation of agency, destination, and real-time departure associated with track/platform directions (Figure A-9.1).

Hierarchy of Information

Directional signs should list a hierarchy of information of the most popular/expeditious connection possibilities from that point, e.g., from the Embarcadero Station, connect to the Cable Car lines to reach Fisherman's Wharf.

Color Coding

For exiting connection information, the message shall be black on yellow background with associated agency logo in color (Figure A-9.2).

Directions of Services

Directions to services should include the agency logos associated with the agency names (Figure A-9.1).



Figure A-9.1
Proposed Embarcadero Station Transit Service directional signage



Figure A-9.2
Proposed Dublin/Pleasanton BART Station exiting directions

Signs Identifying where to Board or Wait for Transit

Multiple Bus Boarding Platforms

At bus transfer centers with multiple bus boarding platforms, e.g., San Rafael, each platform shall be clearly and boldly identified. Color coding should be considered to distinguish the platforms (Figure A-10.1).

Platform Terminology

To avoid confusion, do not mix platform identification with route numbers/letters. Use letters rather than numbers to identify platforms.

Boarding Sign Information

Where a bus route utilizes both sides of a platform for different off-street stop locations, the route number, name and route terminus, e.g., a place name, should be identified.

Boarding Identification/Direction of Travel or Off-street Stop Locations

Where a particular bus route utilizes different platforms for opposite directions of travel, directional signage for the platform, route number, name and route terminus, e.g., a place name, should be provided (Figure A-10.2).

Platform Track Identification

On commuter rail station platforms, the track identification number should be large and bold. The service agency, destination, number and “real time” of departure should be associated with the track identification number.

Bus Stop Sign Identification

On bus boarding stop signs, agency logos and colors should be large and bold to distinguish between multiple transit operators at the facility. Uniformity of bus stop sign layout should be considered. Accessibility and parking restrictions should be auxiliary signs placed below the basic bus stop sign.



Figure A-10.1
Proposed San Rafael Bus Transfer Center-typical platform ID



Figure A-10.2
San Rafael Bus Transfer Center (view from Platform B)
Proposed bus boarding identification Northbound and Southbound
Route 26 & 27 board on different platforms

Bus Stop Schedule Information

At each off-street bus stop, a current bus frequency schedule with last bus listing and route line map should be included at eye level, using an easily changeable display.

Americans with Disabilities Act

To the maximum extent practicable, bus route identification on bus stop signs should comply with 2004 ADAAG Guidelines – minimum 2” route number character height. Refer to Appendix B for Transportation (Section 810) (Figure A-11.1).

Signs Providing Orientation to Surroundings beyond the Station

Localized Transit Information

Maps, schedules and fare information should be organized and focused upon localized transit connection service stops within a reasonable walking distance.

Destination Locator Matrix

At large hub stations, e.g., Embarcadero, Montgomery Street, Transbay Terminal, etc., provide a comprehensive alphabetized destination locator matrix listing as the first step in identifying what transit service(s) to use from that station. This locator matrix would be similar to destination-to-destination mileage charts on highway maps. Where the destinations intersect on the matrix, the transit services connecting the two are identified.

Area Map

At large urban hub stations, provide a localized, simplified area map with destinations, geographical landmarks, and nearby bus stops where connections are made (Figure A-11.2). An itemized list of popular local and regional destinations with agency logo and route numbers serving those destinations should be below the map (Figure A-12.2).



Figure A-11.1
Proposed Diridon Station ID of DASH free shuttle service stop



Figure A-11.2
Proposed Embarcadero Station Bus Boardin Locations

Area Map Location

Area maps should be located near the station exit(s) along the main traffic path.

“You are here” Indicator

Area and system maps should always have a bold “You are here” indicator. An arrow is recommended because it can show the viewer’s orientation (Figure A-12.1).

Connectivity Color Coding

All map displays shall have a header with yellow background and black copy, which relates to connectivity directional signage.

Walking/Time Distances

Area maps shall have walking/time distance rings surrounding the station which helps focus attention on the “You are here” indicator.

Agency Identity Reinforcement

On existing maps, e.g., downtown map at Ferry Terminal, the agency logo should also be used to identify stations, because it creates awareness of the service and reinforces the on-street station identification sign.

Area Map Orientation

As much as possible, local area maps should be oriented so that the viewer is at the 6 o’clock position.

Kiosks

Freestanding kiosks should provide information on how to use the transit service, schedules, fares, and service announcements. Where multiple transit services are represented, each panel shall be dedicated to a single agency for clarity.

Real-time Transit Signs

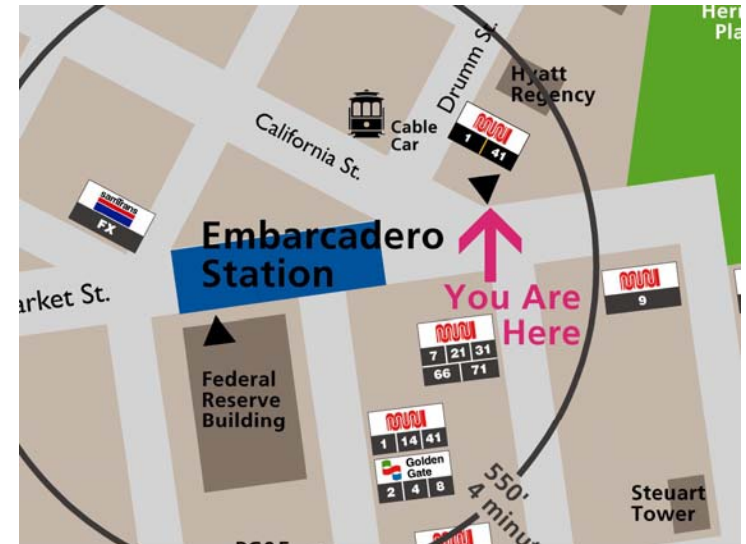


Figure A-12.1
Identify on map MUNI Bus Stop (Drumm St.) serving Chinatown (close-up)



| Routes Serving Nearby Destinations | | 12 Minutes |
|------------------------------------|--|-------------------------------|
| Downtown | | Folsom St. |
| Academy of Art..... | | Coit Tower |
| Asian Art Museum | | Davies Symphony Hall |
| Bill Graham Civic Auditorium..... | | Fisherman's Wharf..... |
| Cable Car Museum..... | | Golden Gate University |
| Chinatown | | Hastings College of Law |
| Civic Center..... | | Moscone Convention Center.... |

Figure A-12.2
Identify transit serving Chinatown (close-up)

Multi-agency Transit Facilities

At multi-agency transit facilities, real-time signage should indicate the service agency, destination of the train (or bus) level of service, e.g., Bullet Train, and actual departure time. The time displayed should be, if feasible, a countdown of the actual departure time or estimated clock departure time (Figure A-13.1).

Single-agency Transit Facilities

At single-agency transit facilities, real-time signage should indicate the route number, direction of travel/destination of the train (or bus) and actual departure time to verify correct platform/boarding stop.

Real-time Sign Location

Real-time signs should be located at station or transit center entrances outside the paid area to aid passengers in determining how much, or little, time they have to make their connection.

Countdown Display Method

Whenever technologically feasible and credible, real-time displays should express the departure time as a countdown mode – 4 minutes, 3 minutes, etc., because users' timepieces may not agree with system clock time (Figure A-13.2).

Display Technology

Real-time signs should utilize daylight readable amber Light Emitting Diode (LED) technology – full matrix displays, which are proven to be the most legible under all lighting conditions. Research by TCHRP recommends amber as the most legible color with best contrast under all ambient-lighting conditions.



Figure A-13.1
Proposed Diridon Rail Station directions to platform



Figure A-13.2
Proposed Dublin/Pleasanton BART Station Real Time train information at entry lobby

Display Configuration

Real-time messages should, as much as possible, be displayed as one-page messages – two lines are recommended. When messages require more than two lines, a scroll-up sequence is recommended, holding one line while adding a second for message continuity. Figure A-13.2 depicts an example of a terminus station; intermediate stations would display multiple directions and lines.

MTC TRANSIT CONNECTIVITY STUDY

TECHNICAL MEMORANDUM 4
Proposed Regional Wayfinding Signage Program

APPENDIX B

2004 ADA/ABA GUIDELINES
BRIEF SUMMARY OF REQUIREMENTS
OF KEY ITEMS

MTC TRANSIT CONNECTIVITY STUDY

TECHNICAL MEMORANDUM 4
Proposed Regional Wayfinding Signage Program

APPENDIX C

2004 ADA REQUIREMENTS
SECTION 810
TRANSPORTATION
FACILITIES